**Precalculus**

**Notes 4.2 & 4.3**

1. **The Unit Circle**

Consider when

So, on the unit circle the length of the arc radians.

Consider wrapping the number line around the unit circle ⇒ each corresponds to some point and some .

1. **The Trig Functions on the Unit Circle**

Sine ⇒

Cosine ⇒

Tangent ⇒

Cosecant ⇒

Secant ⇒

Cotangent ⇒

1. **The 6 Trig Functions on a Right Triangle**

**Ex. 1:** Find the values of the 6 trig functions.

1st use PT to find the length of the hypotenuse. Then use the definition of the 6 trig functions on a right triangle.

**Ex. 2:** Evaluate Trig functions of .

**Ex. 3:** Evaluate Trig Functions of and .

**Ex. 4:** Let be an acute. Find and . Use the trig identities:



**Ex. 5:** Let be an acute. Find and .

Using the Calculator to Evaluate Trig Functions

**Ex. 6:**

1. Change to a decimal
2. **Applications Involving Right Triangles**

To solve a right triangle means to find the lengths of its 3 sides and the measures of its 3 angles.

**Ex. 7 & Ex. 8:** p. 285

**Ex. 9:** p. 286

1. **Evaluating Trig Functions:**

**Without a calculator:**

**With a calculator:**

1. **Domain and Period of Sine and Cosine**
2. Domain of both = \_\_\_\_\_\_\_\_\_\_
3. To find range for both, consider the Unit Circle.

(x, y) ⇒ (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

Therefore, the range for both is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Both functions are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because they behave in a repetitive manner.

The period for both is